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10/523,368

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Hidekazu Michioka

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03/04/2009

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EXAMINER

WAITS, ALAN B

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/523,368	Applicant(s) MICHIOKA ET AL.	
	Examiner ALAN B. WAITS	Art Unit 3656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The title of the invention is accepted.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al USP 2757548 in view of Namimatsu et al USP 6216821.

Smith discloses a similar device comprising:

Re clm 1:

- a screw shaft (10, fig 1) having a ball rolling groove (11, fig 1) on an outer periphery thereof
- a plurality of balls (14, fig 1) rollable along said ball rolling groove
- a nut member (12, fig 1) engaged with said screw shaft through said balls
- a seal member (27, 28, and 37, fig 2) provided outside said lubricant supply mechanism
- an oil lip member (17, fig 3) is provided in a vicinity of said application member with a predetermined gap provided between itself and said application member in a direction of said ball rolling groove

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- said oil lip member having a distal end placed in sliding contact with a surface of said ball rolling groove to scrape the lubricant off said ball rolling groove (as shown by 17 in fig 3)
- said oil lip member being made of a material that is not impregnable with the lubricant (as shown in fig 3)

Although smith does disclose:

- a mechanism (31, fig 3) provided at each axial end of said nut member
- said mechanism has an application member (31 in the ball groove, fig 3) whose distal end is in sliding contact with said ball rolling groove

Smith does not disclose:

- said mechanism being a lubricant supply mechanism
- said application member being impregnable with lubricant, [so that the lubricant is supplied to said ball rolling groove through said application member]

Namimatsu teaches a similar lubrication device, comprising:

- a lubricant supply mechanism (20, fig 1)
- said application member being impregnable with lubricant (30, fig 4), [so that the lubricant is supplied to said ball rolling groove through said application member]

for the purpose of providing an improved lubrication mechanism that is substantially maintenance free (c 1, ln 35-43).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Smith and include:

- a lubricant supply mechanism provided at each axial end of said nut member
- said lubricant supply mechanism has an application member whose distal end is in sliding contact with said ball rolling groove
- said application member being impregnable with lubricant, [so that the lubricant is supplied to said ball rolling groove through said application member]

for the purpose of providing an improved lubrication mechanism that is substantially maintenance free.

Re clm 2, Smith further discloses:

- said oil lip member is secured to a mount portion of the application member of said lubricant supply mechanism through a leaf spring (19, fig 3) [so that the distal end of said oil lip member is always kept in sliding contact with the surface of said ball rolling groove by elastic force of said leaf spring]

Re clm 3, Smith further discloses:

- said oil lip member has a sliding contact portion that comes in sliding contact with the surface of said ball rolling groove (17, fig 3)
- said sliding contact portion being integrally provided at a distal end of an oil lip body made of an elastic material (as shown in fig 3)

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- said oil lip member being secured to a mount portion of the application member of said lubricant supply mechanism through a support member (19, fig 3) [so that a distal end of said sliding contact portion is always in sliding contact with the surface of said ball rolling groove]

Smith does not disclose:

- said sliding contact portion being made of a resin material

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a resin for the sliding contact portion to achieve the predictable result of being able to mass produce them at low cost.

4. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al USP 2757548 in view of Namimatsu et al USP 6216821.

Smith discloses a similar device comprising:

Re clm 4:

- a screw shaft (10, fig 1) having a ball rolling groove (11, fig 1) on an outer periphery thereof
- a plurality of balls (14, fig 1) rollable along said ball rolling groove
- a nut (12, fig 1) member engaged with said screw shaft through said balls
- a seal member (37, fig 2) provided at each end of said nut member
- said seal member has an oil lip member (36, fig 3) whose distal end is always in sliding contact with a surface of said ball rolling groove [to scrape the lubricant off said ball rolling groove]

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- said oil lip member being provided at a predetermined angle α with respect to a radial direction of said screw shaft and at a predetermined lead angle θ with respect to a groove direction of said ball rolling groove (as shown in fig 1)

Smith does not disclose:

- a lubricant supply mechanism that supplies lubricant to a part of the ball rolling groove located in said nut member

Namimatsu teaches:

- a lubricant supply mechanism (20, fig 1) that supplies lubricant to a part of the ball rolling groove located in said nut member

for the purpose of providing an improved ball screw device with a lubrication mechanism that reduces friction and is substantially maintenance free (c 1, ln 35-43).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Smith to replace Smith's material (31, fig 3) with Namimatsu's polymer member containing lubricant (abs) and provide:

- a lubricant supply mechanism that supplies lubricant to a part of the ball rolling groove located in said nut member

for the purpose of providing an improved ball screw device with a lubrication mechanism that reduces friction and is substantially maintenance free.

Re clm 5, Smith further discloses:

- said oil lip member has a sliding contact portion (36, fig 4) that comes in sliding contact with the surface of said ball rolling groove

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- said sliding contact portion being integrally provided at a distal end of an oil lip body made of an elastic material (as shown in fig 4)

Smith does not disclose:

- said sliding contact portion being made of a resin material

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a resin for the sliding contact portion to achieve the predictable result of being able to mass produce them at low cost.

Regarding the functional recitation(s) in the claim(s) above denoted by the “[]” the examiner notes while features of an apparatus may be recited either structurally or functionally, claims directed to >an< apparatus must be distinguished from the prior art in terms of structure rather than function. The reference discloses all the claimed structural limitations and therefore anticipates the claim. See MPEP 2114. Additionally, the apparatus is capable of performing the claimed functions.

Response to Arguments

5. Applicant's arguments filed November 17, 2008 have been fully considered but they are not persuasive.

Applicant argues that Smith fails to disclose an application member whose distal end is in sliding contact with said ball rolling groove. The office action clearly points out that Smith **DOES** disclose this limitation at the bottom of page 3 of the previous office action. The term “application member” is broad enough to encompass any element that applies anything (such as a force or friction).

Applicant further argues that Smith fails to disclose an oil lip member. Applicant is arguing the function and/or intended use of the invention here. A recitation of the intended use of the claimed invention must result in a structural difference between the

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claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

Applicant seems to be arguing that element 17 of Smith cannot be an oil lip member because there is no application member. In other words, the structure 17 does not perform the same function as applicant's device, and therefore, it is patentably distinct. Smith clearly states "the inner surface engages the surface of the screw and provides a wiping action which tends to help clean the screw" (col 3 lines 26-27). Although Smith is referring to 32 in this instance, it is clear that one of ordinary skill in the art would recognize that the similar shape and location of 17 would inherently perform a similar function. Smith further states "a screw providing scraping edges which remove foreign matter therefrom" (col 1, lines 34-35). It is clear that not only does the device of Smith in view of Namimatsu disclose all the structural limitations and that the structure is capable of performing the functional recitations in the claims, but in the arguments above, the structure in the prior art also actually performs the function recitations.

Applicant also argues that elements 31 are clearly not a lubricant supply mechanism. The Examiner agrees. The previous office action states at the bottom of page 3 "a mechanism" is element 31, and then relies on the secondary reference of Namimatsu to provide for lubrication. It appears that applicant has misunderstood the rejection of the previous office action.

Applicant further argues that the polymer member 20 is clearly not provided at each axial end of the ball nut 2 of Namimatsu. Namimatsu clearly shows in figures 13 and 14 that element 120 (polymer containing lubricant) is on both sides of the ball nut 202.

Applicant further argues that Namimatsu is silent with regard to 1.) said supply mechanism has an application member whose distal end is in sliding contact with said ball rolling groove, and 2.) said application member being impregnable with lubricant so that the lubricant is supplied to said ball rolling groove through said application member. With regard to the first point, Namimatsu clearly shows a distal end (bottom of 20B, fig 3b) of an application member 20A in sliding contact with said ball rolling groove (col 7, lines 50-51). With regard to the second point, Namimatsu states that the polymer 20 contains lubricant (col 6 lines 49-51).

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALAN B. WAITS whose telephone number is (571)270-3664. The examiner can normally be reached on Monday through Friday 7:30 am to 5 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on 571-272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Alan B Waits/
Examiner, Art Unit 3656

/Richard WL Ridley/
Supervisory Patent Examiner, Art Unit 3656

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